

Mr. Shashi Kumar
Naval Surface Warfare Center, Crane Division
300 Highway 361
Crane, Indiana 47522-5000

Re: Exempt Construction and Operation Status,
101-11606-00005

Dear Mr. Kumar:

The application from Naval Surface Warfare Center, Crane Division, received on November 29, 1999, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following natural gas-fired boiler and water heater, to be located at Airborne Electronics Warfare Center, 300 Highway 361, Crane, Indiana, is classified as exempt from air pollution permit requirements:

- (a) One (1) Kewanee natural gas-fired boiler, identified as B-1, with a maximum capacity of 2.01 million British Thermal Units per hour (mmBtu/hr), exhausting to stack B-1 with no pollution control equipment.
- (b) One (1) A.O. Smith natural gas-fired water heater, identified as GWH-1, with exhaust gases exiting to stack GWH-1 with no pollution control equipment.

The following conditions shall be applicable:

- (1) Pursuant to 326 IAC 6-2-4 (Particulate Matter Emissions Limitations), particulate emissions from the natural gas-fired boiler shall not exceed 0.21 pound per million Btu heat input (lb/mmBtu). This limitation was calculated using the following equation:

$$Pt = \frac{1.09}{Q^{0.26}}$$

Pt = pounds of particulate matter emitted per million Btu (lb/mmBtu) heat input.

Q = Total source maximum operating capacity rating in million Btu per hour (mmBtu/hr) heat input.

Q = 549.31 mmBtu/hr

This existing source has submitted their Part 70 application T101-7341-00005 on December 13, 1996. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Management (OAM) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Management

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cc: File - Martin County
Martin County Health Department
Air Compliance - Gene Kelso
Southwest Regional Office
Permit Tracking - Janet Mobley
Technical Support and Modeling - Michele Boner
Compliance Data Section - Karen Nowak
Part 70 Application File - T-101-7341-00005

Indiana Department of Environmental Management
Office of Air Management
and the Southwest Regional Office

Technical Support Document (TSD) for an Exemption

Source Background and Description

Source Name: Naval Surface Warfare Center, Crane Division
Source Location: 300 Highway 361, Crane, Indiana 47522-5000
County: Martin
SIC Code: 9711
Operation Permit No.: T101-7341-00005, not issued yet
Exemption Permit No.: 101-11606-00005
Permit Reviewer: Kimberly Titzer

The Office of Air Management (OAM) has reviewed an application from Naval Surface Warfare Center, Crane Division relating to the construction and operation of:

- (a) One (1) Kewanee natural gas-fired boiler, identified as B-1, with a maximum capacity of 2.01 million British Thermal Units per hour (mmBtu/hr), exhausting to stack B-1 with no pollution control equipment.
- (b) One (1) A.O. Smith natural gas-fired water heater, identified as GWH-1, with exhaust gases exiting to stack GWH-1 with no pollution control equipment.

History

On November 29, 1999, Crane Division, Naval Surface Warfare Center submitted an application to the OAM requesting to add one natural gas-fired boiler and water heater. At the time of this review, Crane Division, Naval Surface Warfare Center had not been issued a Title V Operating Permit.

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on November 29, 1999.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (page 4).

Potential To Emit

The potential to emit (PTE) from the natural gas-fired boiler and water heater is specified in the following table:

Pollutant	Potential To Emit (tons/year)
PM	less than 5
PM-10	less than 5
SO ₂	0
VOC	less than 10
CO	less than 25
NO _x	less than 10

Based on calculations, the potential to emit is less than five (5) tons for PM₁₀ per year, less than ten (10) tons for SO₂, NO_x and VOC per year and less than twenty-five (25) tons per year for CO. Therefore, the natural gas-fired boiler and water heater are considered exempt.

County Attainment Status

The source is located in Martin County.

Pollutant	Status
PM-10	attainment
SO ₂	attainment
NO ₂	attainment
Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO_x) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Martin County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Martin County has been classified as attainment or unclassifiable for all criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this unit.
- (b) 40 CFR 60, Subpart Dc (Standards of Performance for Small Industrial Commercial-Institutional Steam Generating Units) does not apply based on the maximum capacity of the boiler. The applicability threshold is less than one hundred (100) mmBtu/hr and greater than ten (10) mmBtu/hr. This natural gas-fired boiler is less than ten (10) mmBtu/hr.
- (c) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR art 63) applicable to this unit.

State Rule Applicability - Individual Facilities

326 IAC 6-2-4 (Particulate Matter Emission Limitations for Sources of Indirect Heating)

Pursuant to 326 IAC 6-2-4 (Particulate Matter Emissions Limitations), particulate emissions from the natural gas-fired boiler shall not exceed 0.21 pound per million Btu heat input (lb/mmBtu). This limitation was calculated using the following equation:

$$Pt = \frac{1.09}{Q^{0.26}}$$

Pt = pounds of particulate matter emitted per million
Btu (lb/mmBtu) heat input.

Q = Total source maximum operating capacity rating
in million Btu per hour (mmBtu/hr) heat input.

$$Pt = \frac{1.09}{(547.3 + 2.01)^{0.26}} = 0.21 \text{ lb/mmBtu}$$

C (Q = 547.3 mmBtu/hr calculated from boilers/furnaces/heaters submitted with Title V application.)

The unit complies with the 0.21 lb/mmBtu limit based on the following calculation:

(Potential PM emissions) / (Maximum capacity of boiler) = Pt

(0.023 lbs/hr) / (2.0 mmBtu/hr) = 0.011 lbs/mmBtu

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 188 hazardous air pollutants (HAPs) set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Construction Permit Application Form Y.

(a) This unit will emit levels of air toxics less than those which constitute a major source according to Section 112 of the 1990 Clean Air Act Amendments.

Conclusion

The construction and operation of the natural gas-fired boiler and water heater shall be subject to the conditions of the attached proposed Exemption 101-11606-00005.

		Appendix A: Emissions Calculations				
		Natural Gas Combustion Only				
		MM BTU/HR <100				
		Small Industrial Boiler				
		Company Name:	Naval Surface Warfare Center, Crane Divisor			
		Address City IN Zip:	300 Highway 361, Crane, Indiana 47522			
		CP:	Ex101-11606-00005			
		County:	MArtin			
		Reviewer:	Kimberly Titzer			
		Date:	December 8, 1999			
Heat Input Capacity		Potential Throughput				
MMBtu/hr		MMCF/yr				
2.0		17.6				
		Pollutant				
		PM	PM10	SO2	NOx	VOC
Emission Factor in lb/MMCF		7.6	7.6	0.6	100.0	5.5
					*see below	
Potential Emission in tons/yr		0.1	0.1	0.0	0.9	0.0
Methodology						
All emission factors are based on normal firing.						
MMBtu = 1,000,000 Btu						
MMCF = 1,000,000 Cubic Feet of Gas						
Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32						
PM emission factors are condensable and filterable.						
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MM						
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-						
(SUPPLEMENT D 3/98)						
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/tc						